The Monthly Newsletter of the Surrey Amateur Radio Club December 2010

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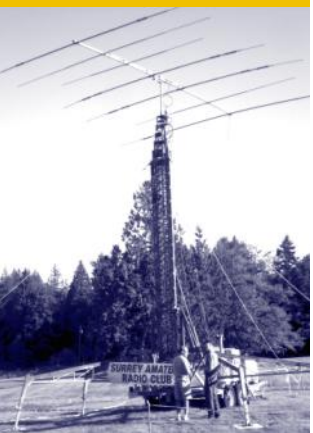
The **SARC Communicator** is published monthly for members of the Surrey Amateur Radio Club.

SARC maintains a website at **www.ve7sar.net** that includes club history, meetings, news and other information.

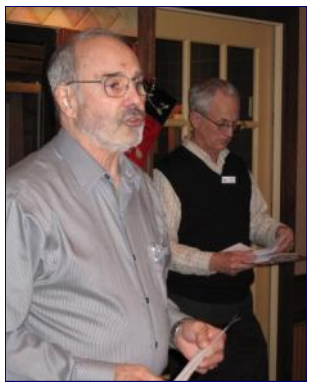


Wasn't That A Party!!!

SARC Celebrates the Season

SARC's Christmas Party, held at the ABC Family Restaurant, was attended by 38 members, spouses and guests. President John VA7XB first introduced the Executive and Directors, new ham class graduates, and guests.

After a hearty buffet-style lunch of roast beef with Yorkshire pudding, mixed vegetables, salads and dessert a brief business meeting was held, which included a Treasurer's report by Scott VE7HA and an RAC status report by Bill VE7XS. Fred VE7IO thanked Surrey Fire Services for their support of both SARC and SEPARS. He also reported on his



visit with Mike VE7CLE, now in care at Kinsmen Lodge, and suggested that Mike would welcome visitors.

John VA7XB then showed a series of PowerPoint slides illustrating highlights of the past year (see the article on page 4).

Vice President, Don VA7GL, then reviewed activities for the coming year, including Field Day, Foxhunts and the summer flea market, which will continue.

At SARC's January 12th meeting, Gord VE7GRK will give a talk and demonstration of emergency life-saving measures that we all should know. Then in February, Amel VA7KBA will tell us about his experiences at the RDF competition in Croatia. Later in the spring, we plan to have a talk on tower safety, a demonstration of antenna modeling software, and possibly workshops on Grab & Go kits and antenna construction. In addition, the Club will be busy purchasing and installing new equipment at the improved repeater location.

Awards were next on the agenda. Special recognition was given to three SARC members who have delivered extraordinary service either to the Club, or to the betterment of amateur radio, or to both.

Gord VE7GRK presented the first award to Hiu Yee VE7YXG for 10 years of capable service managing the SARC website, as official club photographer and long-time supporter of SARC.

Don VA7GL then presented a certificate to Fred Orsetti VE7IO, recognizing him for his willing and capable assistance to new and other club members, and his commitment to many aspects of amateur radio, including traffic nets, contesting, and emergency communication.

The final award was presented by Kelvin VA7KPH to Bill Gipps VE7XS for his selfless contributions as RAC Director for British Columbia and Yukon region and his energetic promotion of amateur radio.

Bill VA7ZBL supervised the draw for door prizes. Special thanks were expressed for the many donations made by: Alan Saunders VA7BIT/Creative Imaging; Gary VE7AS/Radiotronics, ICOM Radio, Burnaby Radio, and ABC Family Restaurant. The 50/50 draw was won by Fred VE7IO.

Thanks were also expressed to the Party organizers: Bill VA7ZBL, Alan VA7BIT, Chris VA7CMZ, Don VA7GL and John VA7XB. A round of applause to Andre, Romaine and the friendly staff at the ABC for a delicious buffet concluded the event. The SARC Executive and Directors wished everyone a very Merry Christmas and Happy New Year.

Please remember that membership dues are now payable, and by December 20th at the latest. This is important as our RAC insurance premium will depend on having an accurate listing of members.

SEPARS Report

Fred Orsetti VE7IO

Monthly exercise with Langley

We have suspended the exercises with Langley until after the Christmas season.

Monthly workshops

The first monthly workshop was held on Thursday November 18th with 20 members in attendance. Reports were received from Al Saunders on LDS activities, Don Hamilton on the go kit upgrade and Jay Melvin on traffic handling.

The format of social activities for the first part of the workshop and presentations and discussions for the latter part of the meeting was well received.

The workshop for December will focus mainly on the expenditure of the gaming grant monies.

Weekly net

The new weekly net format seems to be well received. The roll call for the message part of the net has been suspended. This was a decision coming out of the workshop and seems to be speeding things up considerably.

Gaming grant

We have received our gaming grant funds, not all we asked for but sufficient to move forward with upgrades to SEPARS allowing us to better deliver our services. This is a topic for discussion at the workshop on Thursday December 16th.

Hi Q antennas

With the gaming grant in hand we will move forward with more in-depth testing of the HiQ antennas for the go kits. Mounting and radial kits will be ordered as well as two additional HiQ antennas. So all you gals and guys out there testing the HiQ antenna please make sure you keep a log of the test results.

Annual volunteer appreciation and awards dinner

The volunteer awards dinner was well attended by SEPARS members. Marcy, VE7JT, received one of two outstanding volunteer awards for her work with the community and the Surrey Teachers. Marcy worked diligently with the Surrey Teachers to put together the classroom workshop with the students at Pacific Heights School. Al Saunders received the second outstanding volunteer award for his work in completing the radio room at the EOC and his work with newly licensed radio amateurs.

There were three presentations at the dinner. One by the Search and Rescue group, one by ESS and one by SEPARS. Our presentation was based on the video from the 2010 field day event. Bill Gipps, VE7XS, did an outstanding job presenting the commentary and I am sure many people were surprised to see just how much support amateur radio provides for the City and its residents.

Marion and I wish Everyone a very Merry Christmas

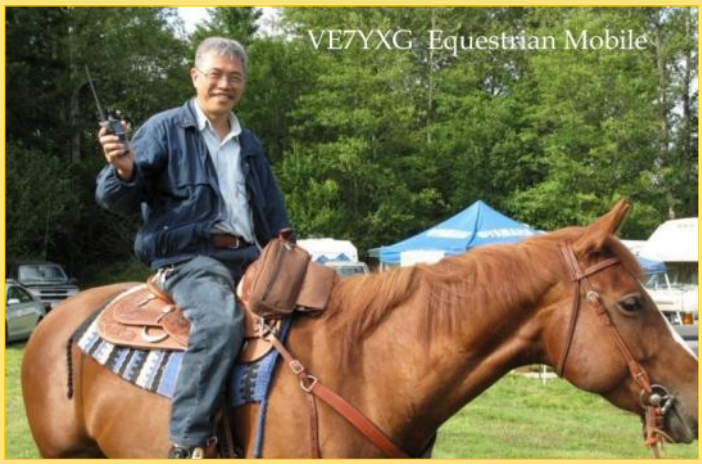
The SARC Year In Review

John Brodie VA7XB

It has been a very busy and successful year for SARC and I presented a retrospective review at the Christmas luncheon. I began the presentation by stating that one of the guiding principles of the current Executive has been to strengthen SARC's relationship with other amateur groups, most notably Langley ARA and SEPARS. The Club leadership had also tried to present to the membership a variety of interesting activities through the year, in the belief that everyone would find some aspect of this great hobby to interest them.

Telus Tower Early in 2010, Telus donated a 100 ft tower on a trailer which has been used in a number of club events since that time and will be used in Coquitlam at the RAC Contest on Dec. 17/18.

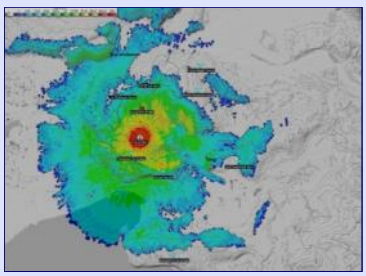
Field Day SARC joined forces with Langley ARA and SEPARS at Campbell Valley Park on Field Day with the result that the team ranked 2nd in BC and 3rd in Canada for Class 3A. In 2011, Field Day will be held at Grandview Heights School grounds, thanks to the support of Surrey Fire Services, who secured the site for us.

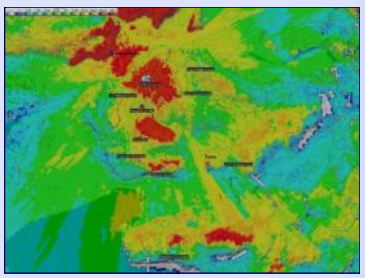


Flea Market The outdoor flea market (again, with Langley ARA) was the first outdoor swap meet for amateur radio in this area. As it was a success, it will be repeated in 2011.

Repeater In Spring 2010, an IRLP/Echolink node was installed on the 2 m repeater, supplementing IRLP on 440 MHz at the UHF repeater site. SARC is in the final stages of securing a new, improved repeater location on the roof of a North Surrey high-rise. This is expected to significantly improve VHF and UHF communication within Surrey and beyond. In addition, SARC's lottery application was successful and the club will be begin replacing obsolete equipment with new gear early in 2011. SEPARS was equally successful with their Lottery application and the two projects will complement each others' objectives.

Meetings Several interesting talks were held during regular club meetings throughout the year on various aspects of amateur radio. Two highlights were the "Getting





Repeater plots pictured above showing coverage from the current site (left) and proposed site (right)

Repeater views pictured above showing coverage from the proposed site

Mounbounce Presentation

Started in Moonbounce" talk by Lionel Edwards VE7BQH and the presentation on Langley ARA's successful school project to communicate with the International Space Station via amateur radio.

Ham Classes *(below)* Fall ham classes just concluded. Over a period of 10 weeks, Gary VE7AS guided a class through the technical material and regulations, with the result that 9 student passed the exam and received their call signs. Gary followed this up with a Beginners' Seminar in November.

Foxhunts *(above and right)* Anton VE7SSD, with the help of BC Radiosport, organized two Fox Hunts, one at Crescent Park in the Spring and a second one at Watershed Park in October, the latter in support of Delta ARA's Comfest 2010.

Garage Sale ***(left and right)*** Through the generous donation by Andy Lo of 30 years' accumulation of electronic gear, SARC and SEPARS held a garage sale and raised a significant amount of money for club activities.

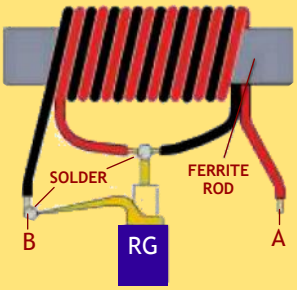
Application Notes

Gary Skett VE7AS

The Balun

Have you ever wondered what was inside one of these? This is a balun, a transformer that helps match the impedance of a dipole to your coaxial cable and/or a BALanced antenna to an UNbalanced feed line.

The schematic equivalent might look like this drawing. The way in which it is wound would make it a 1:1 transformer or a 4:1 transformer. There are other ratios as well, but these two are the most common.



But what if something goes wrong? What if your $85 balun stops working after a good rain [or years of west coast rain] or a wind storm? Two things usually go wrong - water ingress and mechanical failure.

I received two such baluns to have a look at. Both showed an open circuit between coax connector and the dipole connections… Looking at the schematic, one lead to the centre of the coax connector (SO-239 or UHF Female) and either A or B terminal should show a short… you'd think. Same with the braid side of the SO-239 and either B or A… And a short between B to A for that matter… but all DC measurements showed an open… so the obvious answer was mechanical failure - the wire is broken off something inside the casing.

Well one of them showed a green coated connector… no shiny silver there… and drops of water coming out the drain hole… Let's see… hummmm me thinks it's water ingress.

Balun two was still shiny but had been dropped from a 100 foot tower onto a concrete pad, so I suspect a mechanical failure.

Both cases had to be cut open to get inside… thus destroying the casing… it's only PVC plumbing pipe, so easy to make new ones later.

300 Watt 1:1 balun 1

What I found were these:

1KW 1:1 balun 1

The 1KW balun had a hairline fracture on one of the heavy-gauge wires going to the right or bottom-most antenna connector [*photo bottom right*].
I did a temporary solder job on that one for testing. Afterwards, I will wrap it in fine bare copper or a copper foil and re-solder it. And before you say anything, yes the connection isn't shiny. It's not lead-based solder… it's lead free solder and thus no more shiny connections.

Solder patch on wire fracture 1

The second one, with a lighter gauge wire was totally corroded, the connector had to be removed and a quick chemical bath applied to clean it up. Shown in the photo with a new SO-239 [UHF Female] connector this balun is also ready to be tested.

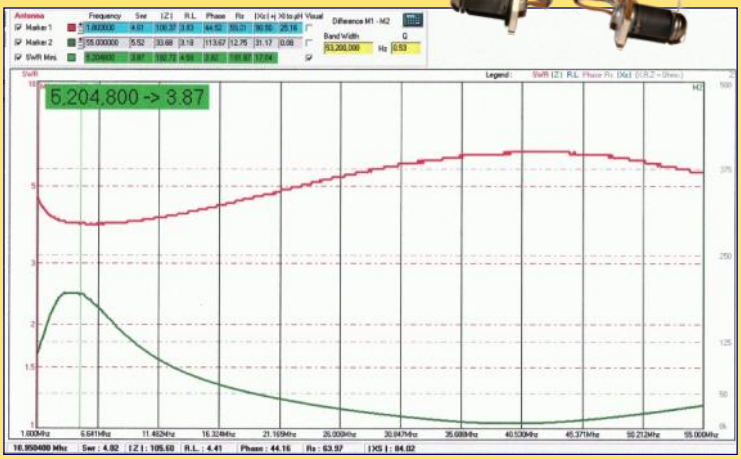
After removing and discarding the old cases… Hummm… which one is a 1:1 , which one is a 4:1 or were they both 1:1 or both 4:1 baluns? D'oh!

Ok how do you test a balun's ratio as well as if it's going to work? Well thanks to those crafty German Hams for making the MiniVNA and a certain French Ham for the software to use it... The MiniVNA is a wonderful device that I have used in past articles for SWR measurements.

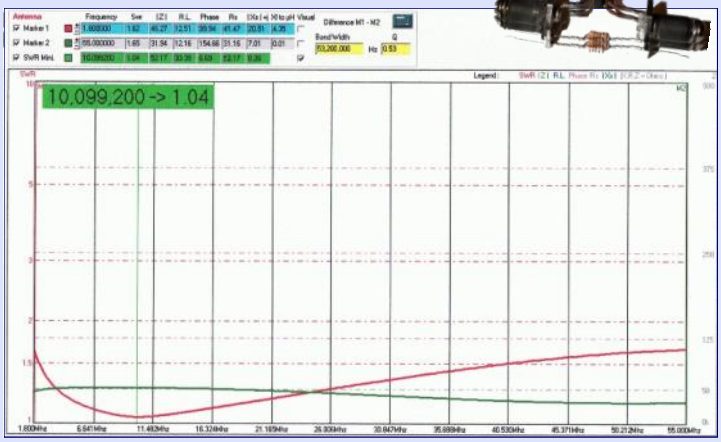
Besides a MiniVNA, you need some resistors. Four 100 ohm resistors will do. Two in series and two in parallel. One will present a 200 Ohm load, the other a 50 Ohm load. Why 100 Ohm you ask? Well they are easier to get than 50 Ohm ones… and I have a whole mess of them in my parts drawer. And of course they make the perfect load to test a 1:1 balun and a 4:1 balun [do the math...]

So… you hook up the MiniVNA and attach a balun for testing…

Test one… Hook up the 200 Ohm load and test. If it's a 4:1 balun the result should show a 50 Ohm impedance and a good SWR from 1.8 Mhz. to 30 MHz.



Let's see? Yikes! The red line is SWR and the Green line is the impedance. If John [the Editor] didn't make the graph *(above)* too small, you can see the SWR is worse that 3:1 and the Z is certainly not flat along the green 50 Ohm reference line. So conclusion… it's not a 4:1 balun.



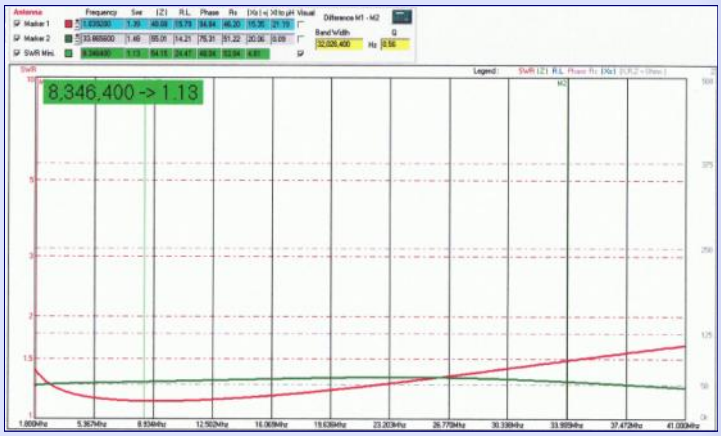
Ok, let's hook up the two parallel 100 Ohm resistors. What's the formula for two similar resistors in parallel?

Wow… look at this! Hopefully the Editor made the graph large enough to read, but we have an SWR from 1.8 MHz. to 55 MHz. of less than 1.5:1 and a Z of pretty darn close to 50 ohms all the way across the band. Interesting that the balun seems to have a resonant point at 10.1 MHz, making it more efficient for the Ham bands between 3.7 to 24 MHz. – although somewhat useful above and below that. Not so good for the 50-55 MHz. 6 meter band… which is what I expected of these type of baluns… for 6 meters and up you need to make another type of balun… [another article for another issue].

So in conclusion, the temporary solder bridge worked and this balun will be good for 80 through to 10 meters or 3.5 to 30 MHz. A little more mechanical strength to add on the fracture point and this balun can be put into a new PVC pipe case and hung out to radiate.

The lower power balun also turned out to be a 1:1 balun. As you may be able to see in it's VNA graph, the resonant point was 8.346 MHz. with a good <1.5:1 SWR from 1.83 to 33.9MHz. Bandwidth. So again, not for the 6 meter band. The red line is the SWR and the green line is Z or impedance, and it's pretty darn close to 50 Ohms throughout it's intended bandwidth.

So, both baluns are working after their repair, both will go back into a water-resistant case [with good drainage] and both will find a new job matching a 50 ohm balanced load with a 50 Ohm coax cable...and just think, some Ham threw them out!



QRP Graph—50 Ohm 1:1 balun 1

Now that I've used my MiniVNA for balun work, it will certainly come in handy to make some 4:1, 9:1 and 12:1 baluns for verticals and the odd impedance radiating magic apartment or townhouse antenna.

Merry Ho Ho Ho and a less hopeless, no HST or higher taxed New Year...

Since when did Santa start charging HST on our big-ticket Ham gear?

--.- .-. -- QRM
News You Can Use

We are moving forward with the preparation for a joint RAC Winter contest with SEPARS and Coquitlam. SARC is contributing two mobile towers and a TH7 tri-band beam to the cause and we will use the Coquitlam radio room, Amps, computers and radios, this is a very complete setup and is great for contesting. All radios, amps etc will be powered by their large generator which allows for testing under emergency conditions. We will be using the call VE7RAC which will be a sought after call as it offers additional points so we will be popular.

The contest starts at 4:00pm (0000z) on Friday Dec. 17th and runs until 4:00pm on Saturday December 18th. The contest is SSB and CW and there will be 2 meters and 6 meters set up as well. This is a very friendly contest and there will be opportunities to wish everyone a Merry Christmas.

If you would like to have some fun on the air let Fred VE7IO know when you are available and we will try to get you on the schedule.

Coquitlam ARC has kitchen facilities and it is recommended that you bring your own main course for the Friday night BBQ also bring some snack food. SEPAR will provide soft drinks and there will be endless coffee.

...and finally
The Last Word

As many of you already know, SARC just completed the latest Basic licensing class. Here are the names and call signs of the club's newest Hams. They all passed their BASIC with honours and received their license on December 1st.

Last Name	First Name	Call Sign
Erhardt	Kristoff G.	VA7ERK
Cusson	Bob P.	VE7WVW
Eshelman	Susan E.	VE7IIE
Knudsen	Jesse	VE7JTK
Fortin	Jean-Marie	VE7FLQ
Law	Richard	VE7GMO
Mitra	Sanju	VA7SPD
Liu	Norman	VE7XXV
Mukhtar	Umar	VE7UMR

Norman Liu VE7XXV is only 12 years old and got 93% on the test. A very smart tween, and he was inspired by the LARA ISS "Talk to the Astronauts" set-up last school season.

The oldest new Ham was Bob VE7WVW, who started his new hobby at the young age of 70.... Bob got 91% on his exam.

Susan Eshelman, is the daughter of the co-designer of the Hallicrafter Ham Transceiver. VE7IIE got 100% on her BASIC license.

Congratulations to all the students and welcome to the hobby. Congratulations and thanks to Gary VE7AS, the instructor who guided these folks to their successful finish.

NET CONTROL	SEPARS Net	SARC Net
1st Tuesday	Drew VA7DRW	Drew VA7DRW
2nd Tuesday	Al VA7BIT	Don VA7GL
3rd Tuesday	Rob VE7CZV	Gord VE7GRK
4th Tuesday	Bill VE7XS	Anton VE7SSD
5th Tuesday and backup	John VA7XB	Bill VE7XS

DOWN THE LOG...

SARC Monthly Meetings

2nd Wednesday (Sept-Jun)
1900 hrs local at PEP PREOC, 96th Avenue, Surrey

Weekly Club Breakfast

Friday at 0830 local
ABC Country Restaurant located at 600 - 7380 King George Blvd. Surrey

SARC Net

Tuesday at 20:00 local
on 147.360 MHz (+) Tone=110.9

SEPARS Net

Tuesday at 19:30 local
on 147.360 MHz (+) Tone=110.9

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Announcements & News

SARC RAC Winter Contest December 17-18th at the Coquitlam Amateur Radio Club.

SARC January Meeting Wednesday, January 12th at 19:00 at PEP SW Headquarters, 14275 96 Avenue, Surrey

Gord Kirk VE7GRK will speak on emergency lifesaving measures

On the Web ve7sar.net

Between newsletters, watch your e-mail for announcements of events, monthly meetings and training opportunities. These announcements may also be found on our web page.

SARC Surrey Amateur Radio Club

***SARC** hosts an Amateur Radio net each Tuesday evening at 8 PM. Please tune in to the VE7RSC repeater at 147.360 MHz (+600 KHz) Tone=110.9, also accessible on IRLP node 1980 and Echolink node 496228. On UHF we operate a repeater on 443.775MHz (+5Mhz) Tone=110.9 and IRPL node 1463. Coming soon, a repeater at 224.000MHz (-1.6MHz).*

CONTACT

VIA THE WEB

www.ve7sar.net

Webmaster Hiu Yee VE7YXG

Editor: John Schouten ve7ti @ rac.ca

TELEPHONE & ADDRESS

(604) 591-1825

va7xb @ rac.ca

12160 Boundary Drive S.
Surrey BC V3X 2B7